

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-22 (Canceled).

Claim 23 (New): A clean device comprising:

a lid and a main body having in a vertically lower portion thereof an opening that is closed by the lid, the clean device having an inside environment kept cleaner than an outside environment to receive a substrate from a clean box, which is kept highly clean inside and has the substrate stored in the inside, and process the substrate;

a load port portion equipped with an opening/closing mechanism having a turnable latch pin to separate the lid from the main body or couple the lid to the main body with the clean box laid thereon; wherein:

the lid of the clean box has: a cam plate configured to engage with the latch pin and actuating in accordance with a turning movement of the latch pin; and a latch member protruding to an outside of the lid to engage a latch hole of the main body of the clean box or being confined within the lid to be released from the latch hole of the main body of the clean box in accordance with an actuation of the cam plate;

the lid of the clean box further comprises a non-circular receiving hole;

the opening/closing mechanism further comprises a protrusion that can be fittingly inserted into the receiving hole;

the latch pin becomes configured to engage the cam plate and the protrusion of the opening/closing mechanism is fittingly inserted into the lid of the clean box when the clean box is laid on the load port portion; and

the protrusion and the receiving hole become configured to engage with each other in accordance with a turning movement of the latch pin.

Claim 24 (New): A clean device according to Claim 23, wherein:

the protrusion comprises a brim portion at a tip thereof; and

the opening/closing mechanism is coupled to the lid through engagement of the brim portion with a seat of the receiving hole after the protrusion is inserted into the receiving hole.

Claim 25 (New): A clean device according to Claim 24, wherein:

the brim portion has a cross-sectional area that is smaller than and substantially similar in shape to the receiving hole so that the brim portion can be fittingly inserted into the receiving hole;

the protrusion further comprises a root portion smaller in cross-sectional area than the brim portion; and

the opening/closing mechanism and the lid are coupled to each other through engagement between the brim portion and the seat of the receiving hole resulting from rotation of the root portion after the protrusion is inserted from the brim portion into the receiving hole.

Claim 26 (New): A clean device according to Claim 24, wherein:

the brim portion has a cross-sectional area that is smaller than and substantially similar in shape to the receiving hole so that the brim portion can be fittingly inserted into the receiving hole;

the protrusion further comprises a root portion smaller in cross-sectional area than the brim portion;

the brim portion and the seat of the receiving hole have faces spaced apart from each other by a predetermined distance when the protrusion is inserted from the brim portion into the receiving hole to a predetermined position; and

the brim portion and the seat of the receiving hole engage each other when the protrusion is moved by the predetermined distance by rotating the root portion.

Claim 27 (New): A clean device according to Claim 25 or 26, wherein:

the root portion is rotated while the latch member is rotated.

Claim 28 (New): A clean device according to Claim 23, wherein the load port portion comprises:

a port door that is raised and lowered and has one face on which the lid is laid;

a buffer chamber defined by wall surfaces arranged surrounding an outer periphery of the port door in a region where the port door is raised and lowered, and by a bottom face arranged opposed to the other face of the port door;

raising/lowering means joined to the port door, for raising and lowering the port door along a direction perpendicular to a face of the port door; and

a bellows arranged along an outer periphery of the raising/lowering means;

wherein the bellows is coupled at one end thereof to the bottom face of the buffer chamber; and

the bellows is fixed at the other end thereof to the raising/lowering means outside the buffer chamber.

Claim 29 (New): A method in which a clean device comprising a lid and a main body and having an inside environment kept cleaner than an outside environment to receive a

substrate from a clean box, which is kept highly clean inside and has the substrate stored in the inside, and process the substrate, is used to separate the lid from the main body of the clean box to prepare for extraction of the substrate, wherein:

the clean device comprises a load port portion equipped with an opening/closing mechanism, having a turnable latch pin to separate the lid from the main body or couple the lid to the main body with the clean box laid thereon;

the load port portion comprises:

a port door configured to be raised and lowered and having one face on which the lid is laid with an outer face of the lid being in contact with the one face; and

a buffer chamber defined by wall surfaces arranged surrounding an outer periphery of the port door in a region where the port door is raised and lowered, and by a bottom face arranged opposed to the other face of the port door;

the lid of the clean box has: a cam plate configured to engage with the latch pin and actuating in accordance with a turning movement of the latch pin; and a latch member protruding to an outside of the lid to engage a latch hole of the main body of the clean box or being confined within the lid to be released from the latch hole of the main body of the clean box in accordance with an actuation of the cam plate;

the lid of the clean box further comprises a non-circular receiving hole;

the opening/closing mechanism further comprises a protrusion that can be fittedly inserted into the receiving hole;

the clean device comprises a first exhaust port arranged close to the port door in the buffer chamber and a second exhaust port arranged apart from the first exhaust port of the buffer chamber; and

the method comprises:

making the latch pin configured to engage with the cam plate when the clean box is laid on the load port portion, and fittingly inserting the protrusion of the opening/closing mechanism into the lid of the clean box;

sucking the lid onto the port door by evacuating, from the first exhaust port, an interface portion where the port door and the lid are joined to each other;

evacuating the buffer chamber from the second exhaust port; and

lowering the port door and transferring the substrate into the buffer chamber.

Claim 30 (New): A method according to Claim 29, wherein:

the clean device comprises a first pressure sensor connected to a vicinity of the first exhaust port and a second pressure sensor connected to a vicinity of the second exhaust port;

the evacuating of the interface portion, where the port door and the lid are joined to each other, from the first exhaust port includes checking a pressure by the first pressure sensor; and

the evacuating of the buffer chamber from the second exhaust port includes checking a pressure by the second pressure sensor.

Claim 31 (New): A method in which a substrate is processed by using a clean device comprising a lid and a main body and having an inside environment kept cleaner than an outside environment to receive a substrate from a clean box, which is kept highly clean inside and has the substrate stored in the inside, and process the substrate, and in which a preparation for returning the processed substrate into the clean box is performed, wherein:

the clean device comprises a load port portion equipped with an opening/closing mechanism having a turnable latch pin to separate the lid from the main body or couple the lid to the main body with the clean box laid thereon;

the load port portion comprises:

a port door configured to be raised and lowered and having one face on which the lid is laid with an outer face of the lid being in contact with the one face; and

a buffer chamber defined by wall surfaces arranged surrounding an outer periphery of the port door in a region where the port door is raised and lowered, and by a bottom face arranged opposed to the other face of the port door;

the lid of the clean box has: a cam plate configured to engage with the latch pin and actuating in accordance with a turning movement of the latch pin; and a latch member protruding to an outside of the lid to engage a latch hole of the main body of the clean box or being confined within the lid to be released from the latch hole of the main body of the clean box in accordance with an actuation of the cam plate;

the lid of the clean box further comprises a non-circular, receiving hole;

the opening/closing mechanism further comprises a protrusion that can be fittingly inserted into the receiving hole;

the clean device comprises a first exhaust port arranged close to the port door in the buffer chamber and a second exhaust port arranged apart from the first exhaust port of the buffer chamber; and

the method comprises:

evacuating the buffer chamber from the second exhaust port;

raising the port door and transferring the substrate from an inside of the buffer chamber to an upper portion of the load port portion; and

releasing suction of the lid onto the port door by supplying nitrogen gas to an interface portion where the port door and the lid are joined to each other.

Claim 32 (New): A method according to Claim 31, wherein:

the clean device comprises a first pressure sensor connected to a vicinity of the first exhaust port and a second pressure sensor connected to a vicinity of the second exhaust port;

the supplying of nitrogen gas to the interface portion includes checking a pressure by the first pressure sensor; and

the evacuating of the buffer chamber from the second exhaust port includes checking a pressure by the second pressure sensor.

Claim 33 (New): An opening/closing mechanism arranged in a substrate processing device to extract a substrate from a clean box and process the substrate by the substrate processing device, the cleaning box having: a lid which has a cam plate and a latch member that moves to protrude from the lid or to be confined within the lid by the cam plate, and on which the substrate can be laid; and a main body that is coupled to the lid by a latch hole for receiving a tip of the latch member when the latch member protrudes from the lid, with an opening provided in a vertically lower portion of the main body being closed by the lid, wherein:

the opening/closing mechanism comprises a rotatable latch pin for engaging the cam plate;

the lid further comprises a non-circular receiving hole;

the opening/closing mechanism comprises a protrusion that can be fittingly inserted into the receiving hole; and

the opening/closing mechanism and the lid are coupled to each other through engagement between the protrusion and the receiving hole to remove the lid from the clean box.

Claim 34 (New): An opening/closing mechanism according to Claim 33, wherein:  
the protrusion comprises a brim portion at a tip thereof; and  
the opening/closing mechanism is coupled to the lid through engagement between the  
brim portion and a seat of the receiving hole after the protrusion is inserted into the receiving  
hole.

Claim 35 (New): An opening/closing mechanism according to Claim 34, wherein:  
the brim portion has a cross-sectional area that is smaller than and substantially  
similar in shape to the receiving hole so that the brim portion can be fittingly inserted into the  
receiving hole;  
the protrusion further comprises a root portion smaller in cross-sectional area than the  
brim portion; and  
the opening/closing mechanism and the lid are coupled to each other through  
engagement between the brim portion and the seat of the receiving hole resulting from  
rotation of the root portion after the protrusion is inserted from the brim portion into the  
receiving hole.

Claim 36 (New): An opening/closing mechanism according to Claim 34, wherein:  
the brim portion has a cross-sectional area that is smaller than and substantially  
similar in shape to the receiving hole to such an extent that the brim portion can be fittingly  
inserted into the receiving hole;  
the protrusion further comprises a root portion smaller in cross-sectional area than the  
brim portion;

the brim portion and the seat of the receiving hole have faces spaced apart from each other by a predetermined distance when the protrusion is inserted from the brim portion into the receiving hole to a predetermined position; and

the brim portion and the seat of the receiving hole engage each other when the protrusion is moved by the predetermined distance by rotating the root portion.

Claim 37 (New): An opening/closing mechanism according to Claim 35 or 36, wherein:

the root portion is rotated while the latch member is rotated.

Claim 38 (New): An article accommodating container comprising:  
a main body having an inner space configured to accommodate an article and an opening provided vertically below the inner space; and a lid for sealing the inner space by closing the opening, wherein:

the main body and the lid have a depressurized space arranged therebetween;

the lid has a falloff preventing member configured to protrude from an outer periphery of the lid;

the main body has a depressed portion for accommodating the falloff preventing member without coming into contact with the falloff preventing member when the falloff preventing member protrudes from the outer periphery of the lid;

the falloff preventing member comes into contact with an inner periphery of the depressed portion when a depressurized state of the depressurized space for sealing the inner space by the lid is broken with the falloff preventing member protruding from the outer periphery of the lid; and

the depressurized space is identical with the inner space.